Bacterial Vaginosis (BV)

OTHER NAMES	Vaginitis, vaginosis, gardnerella vaginalis
ORGANISM	Bacteria (e.g., gardnerella, mycoplasma hominis, mobiluncus), caused by an overgrowth of bacteria
TRANSMISSION	Although BV occurs most often in sexually active women, it is unclear whether or not it is sexually transmitted.
TYPICAL SYMPTOMS	Smelly vaginal discharge, may resemble "fishy" smell and be stronger after sex. Some have a white or gray discharge. Many have no symptoms.
DIAGNOSIS	Inexpensive, simple clinical tests, including taking a sample of vaginal secretions and viewing it under a microscope.
TREATMENT	Prescription oral antibiotic pills or prescription vaginal creams.
PREVENTION	*Abstinence* - Avoid vaginal, anal, or oral sex. *Stay Faithful* - Maintain a long-term relationship with only one uninfected partner who only has sex with you (monogomy). *Take Precautions* - If abstinence or monogomy are not followed, then limit the number of sex partners and use a latex condom during the entire sex act (vaginal, anal, and oral). *Avoid Drug Use* - Mind-altering drugs, including alcohol, reduce our ability to reason, which can lead to risky behavior and risky sex. *Education* - Health and sex education with special emphasis on abstinence and the use of a latex condom during vaginal, anal, or oral sex. Do not use douches or vaginal deodorant sprays.
DANGER	BV can cause complications during pregnancy.
COMMENTS	Do not use nonprescription products such as yeast medicine. Male sexual partners do not need treatment.

Chlamydia

OTHER NAMES

Chlamydia; Chlamydial Infections

ORGANISM

Bacteria: *Chlamydia trachomatis*

TRANSMISSION

Passed during vaginal, anal, or oral sex. Infection to infants during vaginal delivery is possible.

INCUBATION

Poorly defined, probably 7-14 days or longer.

TYPICAL SYMPTOMS

Many cases have no symptoms. When symptoms do occur, they tend to develop slowly and are often mild. Females sometimes have a slight vaginal discharge; itching or burning of the vagina; painful intercourse; abdominal or lower back pain; and fever in late stages. Males may have a discharge from the penis; burning and itching at the urethral opening; and a burning sensation during urination.

DIAGNOSIS

Reliable, quick, and affordable clinical tests are available to determine infection. These tests are available in most clinics, doctors' offices, and hospitals.

TREATMENT

Curable with specific antibiotics (not penicillin) prescribed by a doctor.

PREVENTION

Abstinence - Avoid vaginal, anal, or oral sex.

Stay Faithful - Maintain a long-term relationship with only one uninfected partner who only has sex with you (monogomy).

Take Precautions - If abstinence or monogomy are not followed, then limit the number of sex partners and use a latex condom during the entire sex act (vaginal, anal, and oral).

Avoid Drug Use - Mind-altering drugs, including alcohol, reduce our ability to reason, which can lead to risky behavior and risky sex.

Education - Health and sex education with special emphasis on abstinence and the use of a latex condom during vaginal, anal, or oral sex.

Test and Treat Sex Partners - If partner is infected and untreated, reinfection may occur.

DANGER

If untreated, can cause sterility, premature births, and stillbirths. Infants born to infected mothers may get pneumonia or eye infections which can lead to blindness.

COMMENTS

Chlamydia can be attributed to nongonococcal urethritis (NGU) in men and pelvic inflammatory disease (PID) in women.

Gonorrhea

OTHER NAMES GC, clap, drip, strain

ORGANISM Bacteria: *Neisseria gonorrhoeae*

TRANSMISSION Typically passed by direct contact between the infectious mucous membranes, e.g., genitals, anus, and mouth, of one person with the mucous membranes of another. Contaminated fingers can pass the organism from infected mucous membranes to the eyes. People cannot get gonorrhea from objects.

INCUBATION Usually 2-7 days, but possibly 30 days or more.

TYPICAL SYMPTOMS The genitals (penis, vagina, or cervix), anus, throat, and eyes can be infected. Infected males usually experience burning on urination and a pus discharge from the urethra, but 5-20% have no symptoms. Females may have a vaginal discharge, although up to 80% have no symptoms of cervical infection. If infected rectally, both sexes may have mucous discharge from the anus, blood and pus in the feces, and irritation of the anus. Often there are no symptoms or a mild sore throat for gonorrhea of the throat. Infection of the eyes is rare in adults.

DIAGNOSIS Reliable, quick, and affordable clinical tests are available to determine infection. These tests are available in most clinics, doctors' offices, and hospitals.

TREATMENT Curable with specific antibiotics. Some strains are resistant to antibiotics.

PREVENTION *Abstinence* - Avoid vaginal, anal, or oral sex.

Stay Faithful - Maintain a long-term relationship with one uninfected partner who only has sex with you (monogomy).

Take Precautions - If abstinence or monogomy are not followed, then limit the number of sex partners and use a latex condom during the entire sex act (vaginal, anal, and oral).

Avoid Drugs - Mind-altering drugs, including alcohol, reduce our ability to reason, which can lead to risky behavior and risky sex.

Education - Health and sex education with an emphasis on abstinence and proper use of a latex condom.

Test and Treat Sex Partners - If partner is infected and untreated, reinfection may occur.

DANGER Pelvic Inflammatory Disease (PID) can occur in infected females. Gonorrhea is a major cause of sterility, particularly in women. Gonorrhea bacteria can enter the bloodstream of men or women and spread throughout the body (disseminated gonoccoccal infection or DGI). DGI can infect the joints, heart valves, or brain and can lead to death.

COMMENTS Gonorrhea is most common in people under the age of 20.

Hepatitis A

OTHER NAMES	HAV (Hepatitis A Virus)
ORGANISM	Virus: hepatitis A
TRANSMISSION	Hepatitis A virus is spread by the fecal/oral route. In other words, a person is infected with HAV by ingesting anything that is contaminated by HAV-infected feces. Transmission can occur because of inadequate hand washing by food handlers, poor food or water sanitization, or sexual contact that includes oral/anal contact.
INCUBATION	Fifteen to forty five days.
TYPICAL SYMPTOMS	Many infected people have no symptoms (especially young children). Adults may become quite ill suddenly experiencing jaundice, fatigue, nausea, vomiting, abdominal pain, dark urine/light stools, and fever.
DIAGNOSIS	Blood test.
TREATMENT	There is no specific treatment for hepatitis A. The infection will usually clear up in a few weeks to months and serious long term health problems are rare. Once recovered, an individual is then immune to HAV and will never get the infection again.
PREVENTION	Persons traveling to developing nations where food and water sanitation are in question are encouraged to get the hepatitis A vaccine. Basic prevention includes washing hands with soap and water after using the bathroom and using household bleach to clean surfaces contaminated with feces such as changing tables. Immune globulin (IG) can provide a temporary immunity to the virus for two to three months if given prior to exposure to HAV or within two weeks after contact.
DANGER	Although HAV is the least severe type of hepatitis, in rare instances it can result in liver failure.
COMMENTS	Hepatitis A is endemic in developing countries.

Hepatitis B

OTHER NAMES	HBV (Hepatitis B Virus)
ORGANISM	Virus: hepatitis B
TRANSMISSION	Hepatitis B virus (HBV) is transmitted from person to person through sexual contact, shared needles and needle-sharing equipment known as "works," health care/ occupational exposure and exposure to infected blood through a cut or break in the skin. HBV is found in semen, vaginal secretions and blood. HBV is approximately 100 times easier to get than HIV, although both viruses are found in similar body fluids. HBV can also be passed to a baby during pregnancy or delivery.
INCUBATION	Six to twenty five weeks although average is eight to twelve weeks.
TYPICAL SYMPTOMS	Many infected people have no symptoms (especially young children). Some people have mild flu-like symptoms, dark urine, light stools, jaundice, fatigue, and fever.
DIAGNOSIS	Blood test.
TREATMENT	This is no cure for HBV. Most persons will recover without medical treatment. There is treatment available for persons who are unable to clear HBV on their own. A balanced diet and exercise are also helpful in fighting the infection. Refraining from alcohol is critical. The combination of alcohol and HBV accelerates the progression of liver disease.
PREVENTION	Avoid unprotected vaginal, oral, and anal sex and sharing needles and "works." Do not share personal items which may be contaminated with body fluids (blood, semen, vaginal secretions) known to contain the virus (i.e. razors and toothbrushes). A safe and effective vaccine is available for HBV.
DANGER	The virus causes liver cell damage and inflammation possibly leading to cirrhosis (scarring of the liver) and liver cancer and ultimately liver failure.
COMMENTS	Most adults will recover from HBV within six months and will be immune to HBV in the future. Children, especially infants, are more likely to develop chronic HBV.

Hepatitis C

OTHER NAMES

HCV (Hepatitis C Virus)

ORGANISM

Virus: hepatitis C

TRANSMISSION

Hepatitis C (HCV) is transmitted when the infected blood of one person gets into the blood stream of another person. Prior to 1992, persons receiving blood transfusions or other blood products were at risk. New screening tests have been used in the United States since 1992 to screen blood. The majority of HCV is currently transmitted through the sharing of needles and needle sharing equipment (works). Health care workers who have been stuck by a needle or cut with other contaminated instruments may be at risk, although the risk is fairly low. Studies show the transmission of HCV through sexual intercourse is possible, but less common than direct exposure to HCV infected blood. The virus can also be passed to a baby during pregnancy or delivery

INCUBATION

Two to twenty five weeks although the average is six to nine weeks.

TYPICAL SYMPTOMS

Most people who are infected with the hepatitis C virus do not have symptoms and lead normal lives. If symptoms are present they are generally mild flu-like symptoms, dark urine, light stools, jaundice, fatigue, and fever.

DIAGNOSIS

A simple blood test will tell if you have been exposed to the hepatitis C virus. More specific blood tests can assist in determining the status of the infection. There are three stages. Approximately 15% of persons with HCV are able to clear HCV from their system without medical treatment, known as r**esolved**. Persons may be in an **acute** stage in which the virus is rapidly attacking the liver. Persons in the acute stage may have symptoms but the majority are asymptomatic. The virus may also be in a **chronic** stage during which time the virus is slowly attacking the liver. Most persons with HCV are in the chronic stage. It may take years (two decades or more) to develop serious liver problems and most never do.

TREATMENT

There is no cure for HCV. There are treatments available to help reduce the amount of virus doing damage to the liver. A balanced diet and exercise are also helpful in fighting the infection. Refraining from alcohol is critical. The combination of alcohol and HCV accelerates the progression of liver disease. New and improved therapies are in development.

PREVENTION

Do not share needles or "works." Do not share personal items which could be contaminated with blood (i.e. razors, toothbrushes). Avoid unprotected vaginal, oral, and anal sex. Clean up spilled blood with bleach and wear gloves when touching blood.

DANGER

Even with treatment, some persons may develop cirrhosis, liver cancer and ultimately, liver failure. Of the estimated 4 million persons infected with HCV in the United States, approximately 10,000 die each year from liver failure.

COMMENTS

There is no vaccine for hepatitis C.

Hepatitis D

OTHER NAMES	HDV (Hepatitis D Virus)
ORGANISM	Virus: hepatitis D
TRANSMISSION	Hepatitis D can be transmitted from person to person through sexual contact, sharing intravenous needles and syringes, razors, or toothbrushes. The virus also can be passed to a baby during pregnancy or delivery.
INCUBATION	Hepatitis D: 21-90 days
TYPICAL SYMPTOMS	May have no symptoms (especially young children). Some persons have mild flu-like symptoms, dark urine, light stools, jaundice, fatigue, and fever.
DIAGNOSIS	Blood test.
TREATMENT	There is no reliable, effective therapy specifically for chronic hepatitis D. The hepatitis D virus is only infectious in the presence of the hepatitis B virus, so treatment is for hepatitis B.
PREVENTION	The hepatitis D virus can only infect those also infected with hepatitis B. The hepatitis B vaccine can prevent hepatitis D from being infectious. Avoid sexual intercourse and sharing needles and syringes. Practice safer sex. Do not share personal items that may be contaminated by body fluids, such as razors and toothbrushes.
DANGER	Chronic liver disease and cirrhosis is three to five times more likely in persons with hepatitis B and D than with hepatitis B alone.
COMMENTS	Hepatitis D infects on average 4% of acute hepatitis B cases.

Hepatitis E

OTHER NAMES	HEV (Hepatitis E Virus)
ORGANISM	Virus: hepatitis E
TRANSMISSION	Hepatitis E is transmitted through eating or drinking contaminated food or water supplies, poor personal hygiene, and person to person (uncommon).
INCUBATION	Hepatitis E: 15-60 days.
TYPICAL SYMPTOMS	May have no symptoms (especially young children). Some persons have mild flu-like symptoms, dark urine, light stools, jaundice, fatigue, and fever.
DIAGNOSIS	Blood test.
TREATMENT	There is currently no treatment for hepatitis E.
PREVENTION	To prevent transmission of the hepatitis E virus avoid consuming potentially contaminated water or food.
DANGER	Mortality (death rate) of those infected with hepatitis E is 1-2% although in pregnant women it approches 20%.
COMMENTS	Occurrence of hepatitis E in the U.S. is very rare and is mostly associated with U.S. residents who travel to developing countries.

Herpes

OTHER NAMES

Genital Herpes; Herpes simplex virus (HSV)

ORGANISM

Virus: *Herpesvirus hominis*, usually Type II

TRANSMISSION

Herpes is spread by direct skin-to-skin contact. A person with oral or genital herpes can transfer it to the mouth or genitals (depending on the type of contact) of his/her partner. Transmission can occur even when there are no obvious blisters present. Herpes can also be spread to the eyes, mouth, or genitals by not washing hands after touching the infected area. Genital herpes can be transmitted to an infant as it passes through the infected birth canal.

INCUBATION

Two to thirty days.

TYPICAL SYMPTOMS

Most people who have genital herpes may never have any symptoms. Infected males and females can form painful blisters or sores on the genitals, rectum, or mouth that break, crust over, and heal in 2-4 weeks. Females may have sores on the cervix without pain. Sores may reappear throughout life, although they heal faster, are less painful, and occur less frequently with time. Factors like stress, fatigue, and other illnesses may trigger recurrence of sores in some people.

DIAGNOSIS

Reliable, quick, and affordable clinical tests are available to determine infection. These tests are available in most clinics, doctors' offices, and hospitals.

TREATMENT

No medicine can cure herpes and there is no immunization. A person may remain infected for many years and possibly for life. Medications are sometimes given to relieve pain, to shorten the outbreak, or to prevent bacterial infections in the open sores.

PREVENTION

Abstinence - Avoid vaginal, anal, or oral sex. Infected persons should avoid intimate or sexual contact with others when blisters or sores are present, and for a few days before and after.

Stay Faithful - Maintain a long-term relationship with one uninfected partner who is only having sex with you (monogamy).

Take Precautions - If abstinence or monogomy are not followed, then limit the number of sex partners. Using a latex condom during the entire sex act (vaginal, anal, and oral) can provide limited protection from Herpes.

Avoid Drug Use - Mind-altering drugs, including alcohol, reduce our ability to reason, which can lead to risky behavior and risky sex.

Education - Health and sex education with special emphasis on abstinence and proper condom use during sexual intercourse.

DANGER

Herpes can be fatal or cause permanent brain damage and is especially dangerous in infants and those with suppressed immune systems. If a mother has an active case of HSV at the time of delivery, the baby may be protected by Caesarean delivery.

COMMENTS

During an episode, it's possible to move virus from the location of an outbreak to other places on the body by touching the sore(s). The fingers, eyes, and other body areas can accidentally become infected in this way. Care should be taken not to touch the sores to avoid spreading the outbreak.

HIV/AIDS

OTHER NAMES Human Immunodeficiency Virus (HIV) is the virus that causes Acquired Immunodeficiency Syndrome (AIDS).

ORGANISM Human Immunodeficiency Virus, a retrovirus.

TRANSMISSION HIV can be transmitted from person to person through sexual contact, sharing intravenous needles, syringes, and needle sharing equipment (works). The virus also can be passed to a baby during pregnancy or delivery. HIV can be transmitted through transfusions if the blood is infected.

INCUBATION Variable. The time from infection to the development of detectable HIV antibodies is generally 1-3 months. The time from HIV infection to the development of symptoms and later diagnosis of AIDS ranges from several months to ten years or longer.

TYPICAL SYMPTOMS Most people with HIV infection have no symptoms for many years. When symptoms appear, they include fever, weight loss, severe tiredness, swollen glands, and diarrhea. All these symptoms tend to last a long time and can get worse. Because the immune system gradually weakens, HIV infected people may develop a rare type of pneumonia or cancer, which are associated with AIDS. (We do not know if all cases of HIV infection progress to AIDS).

DIAGNOSIS Laboratory tests have been developed to detect HIV antibodies, indicating a person has been infected with HIV. There are many low or no cost testing sites throught the country. The antibody test is not a diagnosis of AIDS. AIDS is diagnosed when the immune system becomes so weak that diseases and infections begin to attack the body.

TREATMENT Although there is no cure for HIV infection or for AIDS, there is good news regarding treatment. Increased understanding of HIV disease progression, refinement and acceptance of holistic therapies, availability of sophisticated testing, ability to prevent or reduce the impact of opportunistic infections, and potent treatment therapies have made HIV an increasingly manageable chronic disease. Viral eradication is now described as a hopeful possibility.

PREVENTION *Abstinence* - Avoiding vaginal, anal, and oral sex and sharing needles, syringes, and needle sharing equipment (works).

Stay Faithful - Maintain a long-term relationship with only one uninfected partner who only has sex with you (monogamy).

Take Precautions - If abstinence or monogamy are not followed, then limit the number of sex partners and use a latex condom during the entire sex act (vaginal, anal, and oral). Using a spermicide containing nonoxynol-9 with a latex condom can reduce the risk of infection. If abstaining from needle sharing is impossible, then clean the needles (works) with bleach before sharing them. Any needle contaminated with blood needs to be cleaned.

Avoid Drugs - Mind-altering drugs, including alcohol, reduce our ability to reason, which can lead to risky behavior and risky sex. Sharing needles for shooting up is especially dangerous in transmitting HIV.

Education - Knowledge is the best defense against HIV infection. Education is the most effective way to bring about changes in risky behavior. The more you know, the better able you are to protect yourself.

DANGER AIDS continues to be a major cause of death worldwide.

Human Papillomavirus (HPV)

OTHER NAMES Genital warts, venereal warts; *condyloma acuminata*

ORGANISM Human papillomavirus

TRANSMISSION Transmitted by skin-to-skin contact skin with an infected person, most often during vaginal, anal, or oral sex. HPV can be spread even though no warts can be seen.

INCUBATION Symptoms can appear from one to several months after initial infection.

TYPICAL SYMPTOMS Some persons may have red or pink to dirty gray warts appearing on the moist areas of the genitals and anus. Many men and women who have HPV have no symptoms.

DIAGNOSIS Usually identified by observation of warts. Biopsy (tissue examined under microscope) might be done in unusual cases. Regular pap smears are recommended for the detection of cervical warts that may not be visible.

TREATMENT There is no cure for HPV. Warts can be treated with medication, freezing or laser therapy, or surgical removal.

PREVENTION

Abstinence - Avoid sexual contact or intercourse.

Stay Faithful - Maintain a long-term relationship with one uninfected partner who only has sex with you (monogomy).

Take Precautions - If abstinence or monogomy are not followed, then limit the number of sex partners. Using a latex condom during the entire sex act (vaginal, anal, and oral) can provide limited protection from HPV.

Avoid Drug Use - Mind-altering drugs, including alcohol, reduce our ability to reason, which can lead to risky behavior and risky sex.

Education - Health and sex education with an emphasis on abstinence and proper use of a condom during sexual intercourse.

DANGER The warts can grow very large and obstruct the vagina, urethra, or anus. HPV can be transmitted to infants during birth. Cervical cancer has been directly linked to several types of HPV. It is essential for sexually active women to have an annual Pap smear.

COMMENTS HPV is one of the most common sexually transmitted disease and leads to thousands of deaths each year.

NGU

OTHER NAMES

Non-gonococcal urethritis (NGU), non-specific urethritis (NSU)

ORGANISM

Among the several organisms that cause NGU, the most common and most serious is the bacteria *Chlamydia trachomatis* (the same bacteria that causes chlamydia).

TRANSMISSION

Passed during vaginal, anal, or oral sex. Infection to infants during vaginal delivery is possible.

INCUBATION

Poorly defined, probably 7-14 days or longer.

TYPICAL SYMPTOMS

In males a discharge from the penis, burning when urinating, or burning or itching around the opening of the penis. These symptoms frequently appear in the morning. Some men will have no symptoms, or symptoms so mild they go unnoticed. Females often have no symptoms--especially in early stages. In females, painful urination and/or unusual vaginal discharge can be caused by organisms unrelated to NGU.

DIAGNOSIS

Quick, reliable, and affordable tests are available to determine NGU. These tests are available in many clinics, doctors' offices, and hospitals. Since gonorrhea or chlamydia can cause urethritis, they must be ruled out before a diagnosis of NGU.

TREATMENT

NGU is treated and curable with antibiotics.

PREVENTION

Abstinence - Avoid vaginal, anal, and oral sex.

Stay Faithful - Maintain a long-term relationship with only one uninfected partner who only has sex with you (monogomy).

Take Precautions - If abstinence or monogomy are not followed, then limit the number of sex partners and use a latex condom during the entire sex act (vaginal, anal, and oral).

Avoid Drug Use - Mind-altering drugs, including alcohol, reduce our ability to reason, which can lead to risky behavior and risky sex.

Education - Health and sex education with special emphasis on abstinence and the use of a latex condom during vaginal, anal, and oral sex.

Test and Treat Sex Partners - If partner is infected and untreated, reinfection may occur.

DANGER

Dangerous if left untreated. Women and babies are most at risk. Often overlooked because of mild symptoms. Left untreated, the organisms that cause NGU-especially chlamydia-can lead to:

- permanent damage to the reproductive organs of both men and women, resulting in infertility
- problems in pregnancy, resulting in premature delivery or low birth weight
- eye, ear, and lung infections in newborns

COMMENTS

A man can help his female sex partner by getting tested at once if he has symptoms and making sure she gets tested.

Pelvic Inflammatory Disease (PID)

OTHER NAMES	PID, salpingitis
ORGANISM	PID is not an organism. It is a condition which results from inflammatory disorders of the upper female reproductive organs. The most common causes of PID are gonorrhea and chlamydia. However, other microorganisms can cause PID. PID may occur when an infection in the genital tract is not treated right away.
TRANSMISSION	Results from untreated gonorrhea, chlamydia, or other genital tract infection.
INCUBATION	Varies with disease and infection, anywhere from several days to several months after infection.
TYPICAL SYMPTOMS	Signs and symptoms may include severe abdominal cramping, painful sex, abnormal bleeding, or vaginal discharge. However, many women with PID have subtle or mild symptoms. Consequently, many episodes of PID go unrecognized.
DIAGNOSIS	A diagnosis of PID can be made by examination and laboratory tests.
TREATMENT	Antibiotics.
PREVENTION	*Abstinence* - Avoid vaginal, anal, and oral sex. *Stay Faithful* - Maintain a long-term relationship with only one uninfected partner who only has sex with you (monogomy). *Take Precautions* - If abstinence or monogomy is not followed, then limit the number of sex partners and use a latex condom during the entire sex act (vaginal, anal, and oral). If you have sex, get tested for chlamydia and gonorrhea at least once a year. If you think you may have an STD, get tested and treated immediately (before infection can progress to PID). *Avoid Drug Use* - Mind-altering drugs, including alcohol, reduce our ability to reason, which can lead to risky behavior and risky sex. *Education* - Health and sex education with special emphasis on abstinence and the use of a latex condom during vaginal, anal, and oral sex. *Test and Treat Sex Partners* - If partner is infected and untreated, reinfection may occur.
DANGER	PID can cause scarring of the fallopian tubes which can lead to tubal pregnancy (ectopic pregnancy), endometriosis, sterility, and death. PID can cause permanent damage even when it is entirely painless. PID can also cause long-lasting pain.
COMMENTS	Sex partners of persons who have PID should be examined and treated if they had sex with the person during the 60 days prior to symptoms.

Pubic Lice

OTHER NAMES	Crabs, Pediculosis pubis, cooties
ORGANISM	Louse: *Phthirus pubis*
TRANSMISSION	Passed by skin to skin contact with infected person or by infested sheets, towels, and clothing.
INCUBATION	Eggs hatch after 3 to 14 days.
TYPICAL SYMPTOMS	Some people may not have any symptoms. Others have intense itching, blue or gray spots, and insects or nits (eggs) in the pubic area. Some people may also have pinhead-size blood spots on underwear.
DIAGNOSIS	Microscopic examination of nits on hair and locating adult lice adhering to hair.
TREATMENT	Cured with special creams, lotions, or shampoos that can be bought at drugstores. Some products require a prescription while others do not. Bedding, clothing, towels must be laundered in hot water. Combs and brushes should be soaked in hot water.
PREVENTION	Avoid physical/skin to skin contact with infested individuals and their belongings, especially clothing and bedding.
DANGER	None.
COMMENTS	To prevent getting lice again, sex partners and household contacts should be treated at the same time.

Scabies

ORGANISM	A mite: *Sarcoptes scabiei*
TRANSMISSION	Passed by direct skin-to-skin contact with infested person or by infested sheets, towels, and clothing.
INCUBATION	Itching begins after two to six weeks in people without previous exposure. People who have been previously infected develop symptoms 1-4 days after re-exposure.
TYPICAL SYMPTOMS	Early symptoms include small, raised, red bumps or blisters on the skin with severe itching, often identified as burrows. Areas generally affected include the webs of the fingers, wrists and elbows, underarms, belt line, thighs, and external genitalia in men; nipples, abdomen, and the lower portion of the buttocks in women.
DIAGNOSIS	Microscopic examination of the mite, as seen in scrapings from an affected area.
TREATMENT	Cured with special creams, lotions, or shampoos that can be bought at drugstores. Some products require a prescription while others do not. Bedding, clothing, towels must be laundered in hot water.
PREVENTION	Avoid physical/skin to skin contact with infested individuals and their belongings, especially clothing and bedding.
DANGER	None.
COMMENTS	To prevent getting the disease again, sex partners and household contacts must be treated at the same time.

Syphilis

OTHER NAMES

Syph, bad blood

ORGANISM

Bacteria: *Treponema pallidum*

TRANSMISSION

Passed by skin to skin contact with infectious sores or lesions. Passed from an infected woman to her unborn baby. Kissing a person who has a primary or secondary syphilitic lesion present on the lips or in the mouth can also transmit the disease. Although not as efficient as Hepatitis B or HIV, syphilis can be passed through a blood transfusion or by sharing syringes, needles or needle sharing equipment (works).

INCUBATION

10 days to 3 months.

TYPICAL SYMPTOMS

Primary stage: painless chancre (sore) at site of entry of organism, swollen glands.

Secondary stage: symptoms appear after appearance of chancre and may include rash, patchy hair loss, sore throat, and swollen glands. Primary and secondary state symptoms will go away even without treatment, but the germs continue to spread throughout the body.

Latent syphilis: may continue 5-20+ years with no symptoms, but the person is no longer infectious to other people.

Late syphilis: varies from no symptoms to indications of damage to body organs such as the brain and heart, which may lead to death.

DIAGNOSIS

Physical examination, microscope slide from sore, blood tests.

TREATMENT

Cured with antibiotics.

PREVENTION

Abstinence - Avoid vaginal, anal, or avaginal, anal, and oral sex.

Stay Faithful - Maintain a long-term relationship with one uninfected partner who only has sex with you (monogomy).

Take Precautions - If abstinence or monogomy are not followed, limit the number of sex partners and use a latex condom during the entire sex act (vaginal, anal, and oral).

Avoid Drug Use - Mind-altering drugs, including alcohol, can reduce our ability to reason, which can lead to risky behavior and risky sex.

Education - Health and sex education with an emphasis on abstinence and proper use of a latex condom during sexual intercourse.

Test and Treat Sex Partners - If partner is infected and untreated, reinfection may occur.

DANGER

Severe damage to the nervous system and other body parts is possible after many years, including heart disease, insanity, brain damage, and severe illness or death. Untreated syphilis in a pregnant woman may lead to prematurity, severe illness, or death of the newborn.

COMMENTS

Symptoms may imitate those of other diseases. Damage done to the body is permanent. Treatment of pregnant women with syphilis is necessary to prevent damage to the fetus. People with syphilitic lesions are at higher risk for becoming infected with HIV.

TB

TB is not a sexually transmitted disease. However, people with HIV are at increased risk to get sick if infected with TB.

OTHER NAMES Tuberculosis (TB), consumption

ORGANISM Bacteria: *Mycobacterium tuberculosis*

TRANSMISSION TB is spread through the air from one person to another. The bacteria are released into the air when a person with TB disease of the lungs or throat coughs or sneezes. People nearby may breathe in these bacteria and become infected. People with HIV are at greater risk of getting ill.

INCUBATION In most people who breathe in TB bacteria and become infected, the body is able to fight the bacteria to stop them from growing. The bacteria become inactive, but they remain alive in the body and can become active later. This is called latent TB infection. Many people who have latent TB infection never develop TB disease. In these people, the TB bacteria remain inactive for a lifetime without causing disease. People with latent TB infection cannot pass infection to others because the bacteria have no way to be released into the air.

TYPICAL SYMPTOMS The symptoms of TB disease are often of relatively long duration, lasting for weeks or even months. Generalized symptoms may include malaise, fever, night sweats, weight loss, and fatigue. Pulmonary (lung) TB causes a persistent cough and sometimes bloody sputum (mucus).

DIAGNOSIS Diagnosis of TB disease is based on a medical history, a Mantoux skin test, a chest x-ray and lab test on fluids or tissues from the affected part of the body. A person with latent TB infection has a positive skin test but no symptoms or other tests indicating disease.

TREATMENT TB disease can be treated and cured with medications.

PREVENTION Basic prevention includes ensuring that, if infected, your mouth and nose are covered with a tissure when coughing, sneezing, or laughing. It is generally best for a contagious individual to remain as isolated as possible. Preventing TB infection from becoming TB disease is usually done with a preventive therapy including a relatively inexpensive drug given over the course of at least six months.

DANGER Without treatment, TB disease can result in death.

COMMENTS HIV-positive individuals are at very high risk of progressing from TB infection to TB disease.

At the beginning of the twentieth century, TB was the leading cause of death in the United States. TB is still a leading cause of death in many parts of the world.

Trichomoniasis

OTHER NAME Trich (pronounced "Trick"), vaginitis

ORGANISM Protozoan: *Trichomonas vaginalis*

TRANSMISSION Transmitted almost exclusively during sex through exposure to infected vaginal and urethral discharge. In rare instances, trich can be passed from an infected mother to her baby during birth.

INCUBATION 5 - 28 days.

TYPICAL SYMPTOMS Many will have symptoms. These symptoms may include: a smelly, greenish-yellow discharge, vaginal itching and soreness, abnormal vaginal bleeding, and pain with urination. Trich may produce a foul "fishy" odor. Most men will not experience any symptoms. A small number may have a slight itching inside the penis, painful urination, and/or a clear discharge.

DIAGNOSIS Microscopic slide (wet prep/wet smear) of the discharge (women only); culture test; examination.

TREATMENT Curable with an oral medication.

PREVENTION *Abstinence* - Avoid sexual intercourse.

Stay Faithful - Maintain a long-term relationship with one uninfected partner who only has sex with you (monogomy).

Take Precautions - If abstinence or monogomy are not followed, then limit the number of sex partners and use a latex condom during the entire sex act (vaginal, oral, and anal).

Avoid Drug Use - Mind-altering drugs, including alcohol, reduce our ability to reason, which can lead to risky behavior and risky sex.

Education - Health and sex education with an emphasis on abstinence and proper condom use during sex.

Test and Treat Sex Partners - If partner is infected and untreated, reinfection may occur.

DANGER Pregnancy complications including premature delivery and low birth-weight babies. Increased risk for contracting and transmitting HIV.

COMMENTS Sex partners of infected people should also receive treatment to complications and re-infection. Testing for other STDs is strongly recommended.

Vaginitis

OTHER NAMES

Vaginal infection, nonspecific vaginitis, Bacterial vaginosis

ORGANISM

Variety of organisms including candida (yeast), trichomoniasis (trich), and Gardnerella vaginalis

TRANSMISSION

Can be sexually transmitted, but you don't have to be sexually active to have some forms of vaginitis. For example yeast is normally present in the vagina, when it overgrows, it can cause vaginitis.

INCUBATION

Unknown.

TYPICAL SYMPTOMS

May vary or be absent. May include a slight grayish or yellow odorous vaginal discharge and a mild itching or burning sensation.

DIAGNOSIS

Must see a physician to find a specific cause.

TREATMENT

Curable with an oral medication and/or vaginal creams or suppositories. While many women believe they have contracted the infection from a male partner, no studies have shown that treatment of the male partner decreases recurrence rates. Routine treatment of the male partner is not recommended until better data is obtained.

PREVENTION

Abstinence - Avoid sexual intercourse.

Stay Faithful - Maintain a long-term relationship with only one uninfected partner who only has sex with you (monogamy).

Take Precautions - If abstinence or monogomy are not followed, then limit the number of sex partners and use a latex condom during the entire sex act (vaginal, anal, and oral).

Avoid Drug Use - Mind-altering drugs, including alcohol, reduce our ability to reason, which can lead to risky behavior and risky sex.

Education - Health and sex education with special emphasis on abstinence and the use of a latex condom during sexual intercourse.

Avoid douching - Douching can disrupt the natural balance of organisms in the vagina.

Remove wet bathing suits immediately. Use cotton underwear. Keep vaginal area clean, wipe from front to back after a bowel movement.

DANGER

Recently, this condition has been associated with prematurity and other abnormal pregnancy outcomes.

Yeast (Thrush)

OTHER NAMES

Candida; yeast infection; thrush.
Candida of the vagina is called a yeast infection.
Candida of the mouth is called thrush.

ORGANISM

Candida albicans

TRANSMISSION

Can be sexually transmitted, but not usually. You don't have to be sexually active to have some forms of vaginal infection. For example, yeast is normally present in the vagina. When it overgrows, it can cause a yeast infection.

TYPICAL SYMPTOMS

Typical symptoms include vaginal itching/burning and vaginal discharge.

DIAGNOSIS

Inexpensive, simple clinical tests on vaginal discharge are available.

TREATMENT

Yeast/thrush can be treated with prescription and non-prescription pills and vaginal creams or suppositories.

PREVENTION

Avoid douching - Douching can disrupt the natural balance of organisms in the vagina.

Remove wet bathing suits immediately. Use cotton underwear. Keep vaginal area clean, wipe from front to back after a bowel movement.

DANGER

There are no serious complications with yeast infections unless the person is immunocompromised (i.e. has AIDS).

COMMENTS

Male sexual partners usually do not need treatment unless a woman has recurring infections.

This infection frequently occurs during pregnancy.

Because symptoms of yeast infections may be similar to other infections, women should obtain a diagnosis from a health care professional before treating themselves with OTC remedies.

The Link Between HIV and Other STDs

From the National Center for HIV,STD, and TB Prevention

The link between HIV infection and other sexually transmitted diseases (STDs) has now been clearly established. The Centers for Disease Control and Prevention (CDC) is applying new research to prevent all of the major STDs, including HIV infection, and to ensure that communities have the information they need to design, implement, and evaluate comprehensive approaches to HIV/STD prevention programming.

Evidence of the Link: Parallel Epidemics of HIV Infection and Other STDs

The spread of HIV infection in the United States through sexual transmission has followed in the footsteps of other STD epidemics. For example, the geographic distribution of the emerging problem of heterosexual HIV transmission in the South closely parallels that of syphilis. Most of the health districts with the highest syphilis and gonorrhea rates in the U.S. are concentrated in the southern part of the country, the same part of the nation where HIV prevalence among childbearing women also is highest.

In addition, researchers have long recognized that the behaviors which place individuals at risk for other STDs also increase their risk of becoming infected with HIV. STD surveillance can provide important indications of where HIV infection may spread, and where efforts to promote safer sexual behaviors should be targeted.

Other STDs Facilitate HIV Transmission: Biological Basis for the Link

There is now strong population-based and biological evidence that the presence of other STDs increases the likelihood of both transmitting and acquiring HIV. Conversely, increased STD treatment can slow the spread of HIV.

- *Epidemiological studies*: Prospective epidemiological studies have repeatedly demonstrated in groups over time, that when other STDs are present, HIV transmission is at least twofold to fivefold higher than in groups where other STDs are not present.

- *Biological studies:* Biological studies demonstrate that when other STDs are present, the susceptibility to HIV infection is increased and the likelihood of infecting other people is increased.

    a) Increased susceptibility — Other STDs increase the number of HIV target cells (CD4+ cells) in cervical secretions, thereby probably increasing HIV susceptibility in women who have an HIV-positive sex partner.

    b) Increased infectiousness — Studies have demonstrated that when HIV-infected individuals are also infected with other STDs, they are more likely to shed HIV in genital secretions, and shed HIV in greater amounts. For example, in African studies, coinfection with gonorrhea and HIV more than doubles the proportion of HIV-infected individuals with HIV genetic material detectable in genital secretions compared with men infected with HIV alone. Furthermore, the median concentration of HIV genetic material in semen is dramatically increased in coinfected men compared with men infected with HIV alone.

New Evidence that STD Treatment Slows the Spread of HIV Infection in Communities

- *Intervention studies:* Exciting new evidence indicates that STD detection and treatment can substantially reduce HIV transmission at the individual and community levels. For example:

    a) STD treatment reduces the frequency and magnitude of HIV shedding — Treatment of gonorrhea in HIV-infected men returns the concentration of HIV genetic material in semen to baseline levels. These levels are comparable to the levels found in HIV-infected men who do not have other STDs. Treatment of gonorrhea also reduced the proportion of the coinfected men who had detectable levels of HIV genetic material in semen.

b) STD treatment reduces the spread of HIV infection in communities — A landmark community-level, randomized trial in a rural African community in Tanzania demonstrated a 42 percent decrease in new, heterosexually transmitted HIV infections in communities with improved STD treatment as compared to communities with minimal STD services. An ongoing randomized trial in Uganda is exploring alternative approaches, such as mass treatment for STDs, to further examine the impact of STD control on HIV prevention. The results of these studies will be crucial to validating the findings of the Tanzanian trial and to providing a range of intervention models for reducing the spread of HIV infection in communities with high rates of other STDs, both in the developing world and in industrialized countries.

STD Prevention, Detection, and Treatment are Essential Components of HIV Prevention

Detection and treatment of other STDs reduce both the *infectiousness* of persons with HIV infection and the *susceptibility* of persons who are not HIV-infected. Detection and treatment of other STDs are essential components of HIV prevention.

STD Reading List

Books and Guidelines

1. *HIV/STD Guidelines*, Texas Department of Health Bureau of HIV and STD Prevention (1998). Available by written request from the Texas Department of Health Warehouse (Stock No. 4-140).

2. *1998 Sexually Transmitted Diseases Treatment Guidelines*, Centers for Disease Control and Prevention (1997). Available by written request from the Texas Department of Health Warehouse (Stock No. 6-110), or download online at www.cdc.gov/nchstp/dstd/1998_STD_Guidlines/1998_guidelines_for_the_treatment.htm. The "Bible" for current STD treatment recommendations from CDC.

3. *STD Handbook*, Montreal Health Press (2000). Available ($5 each) from the Montreal Health Press, (514) 282-1171. Comprehensive, up-to-date information on STD diagnosis and treatment.

4. *Sexually Transmitted Disease*, Holmes et. al. (1990). Extensive discussion of a spectrum of STD subjects by authorities in each area.

5. *Infectious Diseases of North America*, Handsfield et. al. (1987). Similar to #4, but less comprehensive.

6. *Reproductive Health Care Manual*, Connell and Tatum (1986). Cookbook approach in outline form for persons working in family planning and STD services.

7. *Pocket Picture Guide to Clinical Medicine: Sexually Transmitted Diseases*, Bingham (1985). Good visual presentation of dermatological problems to assist in differential diagnosis of STDs.

Periodicals

1. *Texas HIV/STD E-Update*. The e-mail bulletin of the Texas Department of Health Bureau of HIV and STD Prevention. Call (512) 490-2535 or e-mail greg.beets@tdh.state.tx.us to subscribe.

2. *Texas HIV/STD Update*. The bulletin of the Texas Department of Health Bureau of HIV and STD Prevention. Call (512) 490-2535 or e-mail greg.beets@tdh.state.tx.us to subscribe.

3. *Disease Prevention News*. Biweekly publication of the Texas Department of Health Public Health Professional Education Program. Call (512) 458-7677 to subscribe. Available online at *www.tdh.state.tx.us/dpnhome.htm*.

4. *STD Advisor*. Monthly newsletter with information about managing and preventing STDs. Published by Flynn Publications. Call (800) 662-2424 to subscribe. Website: www.flynnpub.com.

5. *The Helper*. Quarterly newsletter from the American Social Health Association (ASHA) providing timely information on herpes. Call (800) 230-6039 to subscribe or order back issues.

6. *HPV News*. ASHA's quarterly newsletter on HPV infection. Call (800) 230-6039 to order.

7. *STD News*. Quarterly newsletter documenting ASHA's work in STD prevention and control. Call (800) 230-6039 for information.

Reports/Databases

1. *Population Reports*. Series of reports on population, family planning and related health issues distributed by the Center for Communication Programs, The Johns Hopkins School of Public Health. To view reports, go to www.jhuccp.org/pr/fulltext.stm.

2. *Popline*. World's largest bibliographic database on population, family planning, and related health issues. Over 260,000 citations with abstracts to scientific articles, reports, books, and papers. Now available online at igm.nlm.nih.gov. For more information, write to the Population Information Program (same address as above).

Web Sites

1. CDC WONDER (http://wonder.cdc.gov). CDC WONDER provides a single point of access to a variety of CDC reports, guidelines, and even numeric public health data.

2. CDC National Prevention Information Network, National Center for HIV, STD, and TB Prevention (www.cdcnpin.org). HIV/STD information, publications and resources, media campaign information, basic statistics, funding/training opportunities, and links to other sites.

3. National Institute of Allergy and Infectious Diseases - National Institutes of Health (www.niaid.nih.gov). Research and informative fact sheets on HIV/STD and other infectious diseases.

4. American Social Health Association (www.ashastd.org). Information about STD prevention, education and advocacy.

5. The STD Research Group (www.med.jhu.edu/jhustd/frame3.htm). The web site of The Johns Hopkins University School of Medicine's STD Research Group provides information on STD prevention, diagnosis, and treatment for health care providers.

Update on Seroconversion for HIV Infection

What is the seroconversion (the "window period")?

Seroconversion is the length of time after infection that it takes for a person to develop enough specific antibodies to be detected by our current testing methods. This is commonly referred to as the "window period." If an individual engages in unsafe sex or shares drug injection equipment and becomes infected, the body will make antibodies to fight HIV. When enough antibodies are developed, the HIV antibody test will come back positive. Each person's body responds to HIV infection a little differently, so the window period varies from person to person. HIV is most commonly diagnosed in adolescents and adults through HIV antibody testing. However, there are also tests that diagnose HIV infection by detecting certain parts of the genetic material of HIV. PCR (polymerase chain reaction) tests are used to diagnose HIV infection in infants. Viral culture may also be performed in certain circumstances to diagnose HIV.

How has our understanding of seroconversion changed over the years?

Early in the epidemic, our testing methods were not as sensitive as they are today. Doctors and public health officials wanted to make sure that people who engaged in risk behaviors for HIV were tested long enough after their risk to be sure that anyone who was actually infected would test positive. The Centers for Disease Control currently states that people with possible exposure to HIV, who test negative, should be re-tested six months after the possible exposure to ensure that sufficient time has elapsed to make antibodies. However, as early as 1990, the Association of State and Territorial Public Health Laboratory Directors reached a consensus recommendation that virtually all seroconversions are complete within twelve weeks of exposure. Improvements in HIV testing technology over the last fifteen years, increasing laboratory experience with testing and the ability to better monitor early infection through PCR testing have contributed greatly to our understanding of the window period and have provided increased confidence that virtually *all* cases of HIV infection can be detected within three months.

What is the best time for the first HIV test after a possible exposure to HIV?

Most people infected with HIV will develop enough antibodies to be detected by our current HIV antibody tests four weeks after the exposure. This means that, for example, if a person had unsafe sex and became infected on January 1, it is likely that he/she will have enough antibodies to test positive four weeks later. If the person tests positive, this early testing is beneficial because the person can begin receiving medical care very early in the course of infection. Recent advances in care and treatment for HIV infection have increased the advantages of early identification and treatment. Therefore, especially when HIV infection is highly suspected, the first HIV test should take place four weeks after the exposure. In cases of occupational exposure or exposure through sexual assault, an HIV test is also recommended immediately after the exposure to establish baseline HIV status. The protocol for testing following exposure remains unchanged by this new policy with tests recommended at baseline, six weeks, three months and six months post-exposure. (See MMWR 1996;45(22):468-472)

How long after a possible exposure to HIV does the person have to wait to be tested to be sure he/she is not infected?

It is possible that someone who tests negative four weeks after an exposure may be infected but his/her body has not had sufficient time to develop antibodies. Therefore, to rule out HIV infection, it is important to re-test three months after the exposure. It is extremely rare for an HIV-infected individual to not develop antibodies by three months. An individual who tests negative three months after an exposure does not require further testing unless he/she may have repeated exposures or if their antibody test results are incompatible with their clinical history.

What is the recommendation for testing individuals who engage in on-going risk behavior?

The primary focus of our work with individuals who place themselves at on-going risk for HIV infection must be continued education, behavioral counseling and harm reduction, such as education about safer injection practices and referral to syringe exchange programs and drug rehabilitation services. HIV testing offers no "protection" from HIV infection. When an individual is engaging in on-going risk behavior it is not possible to develop a timeline for re-testing based on a single exposure. An individual with a negative HIV test who engages in on-going risk behavior should be offered testing every three months and counseled to avoid risk behavior. In these cases, the function of testing is to ensure early access to care in the event that the individual becomes HIV positive.

For more information about seroconversion, consult the following articles:

Bartlet JG. *Serology and Baseline Laboratory Studies for Human Immunodeficiancy Virus Infection* Infectious Diseases in Clinical Practice, Vol. 4, No. 5, pp-334-42

Busch MP, Lee LL, et. al. *Time Course of Detection of Viral and Serologic Markers Preceding Human Immunodeficiancy Virus Tyoe I Seroconversion: Implications for Screening of Blood and Tissue Donors* Transfusion, 1995 Vol 35., No. 2, pp 91-7

Lackritz EM, Satten GA, et. al. *Estimated Risk of the Human Immunodeficiency Virus by Screened Blood in the United States* New England Journal of Medicine, Vol. 333, Number 26, pp-1721-25

Report and Recommendations; Fifth Consensus Conference on Testing for Human Retroviruses, March 6-8, 1990; Association of State and Territorial Public Health Laboratory Directors.

Spousal Notification

The Ryan White CARE Act Amendments of 1996 require all states to make a good faith effort to notify a spouse of a known HIV-infected patient that he or she may have been exposed to HIV and should seek counseling and testing. **Failure to fufill this requirement will jeopardize Ryan White CARE Act grant funds for the State of Texas.**

Since **April 1, 1997**, TDH has provided information on spousal notification requirements and procedures to all individuals reporting cases of HIV infection and AIDS. The procedures require that a person diagnosed with HIV infection or AIDS be **(a)** asked if they have, or have had, a spouse (as defined below) and **(b)** informed that he or she should notify their spouse or former spouse(s) of the potential exposure to HIV. The procedures will outline what services are available for reporting individuals who request assistance with the notification process.

Definition of Spouse

A spouse is defined as "any individual who is the marriage partner of an HIV-infected patient, or who has been the marriage partner of that patient at any time within the 10-year period prior to the diagnosis of HIV infection." If two persons consider themselves married and represent themselves as such, they should be considered married for spousal notification purposes.

Spousal Elicitation

When discussing partners in a counseling session, **every** HIV-infected patient must be asked questions such as:

- "Who have you been married to in the last 10 years?"
- "How many people have you considered yourself married to since ____ (10 years before testing HIV positive)?"
- "What has your marital status been during the past 10 years?"

All spousal elicitation efforts should be documented in case management notes.

Spousal Notification

Reasonable efforts must be made to determine if each HIV-infected patient intends to notify his/her spouse/former spouse(s) of the possible exposure to HIV or agrees to have a qualified health department disease intervention specialist (DIS) notify them.

Culturally competent partner notification services are available through local and regional STD control programs at health departments around the state. No information leading to the identity of the HIV-infected person will be revealed to the spouse by the DIS making the notification. Call **(512) 490-2552** to find out about notification resources in your area.

If the HIV-infected person indicates his or her intent to notify the spouse, culturally competent counseling and educational services on the following issues should be made available:

- How to make the notification
- How to preserve the confidentiality of both the HIV-infected person and the spouse
- How HIV transmission and infection can be prevented
- How the spouse may access counseling, testing, other prevention services, and treatment.

Providers must implement reasonable procedures to ensure that notified spouses receive referrals for HIV counseling, testing, other prevention services, and treatment.

NOTE: Combinations of the two notification methods are acceptable. For example, a person may decide to inform her/his current spouse and choose health department notification for the former spouse(s), especially if the former spouse(s) live out of town.

Legislation Referenced

Ryan White CARE Reauthorization Act (Public Law 104-146), Section 8(a).